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NOTES ON NOMENCLATURE. II.

By Elizabeth G. Britton.

It is surprising when we compare the various references to American species, what contradictions and mistakes we encounter! The following is as good an illustration as could well be selected:

Hypnum revolutum (Mitt.) Lindb. Hedwigia 7:108. 1868 (1858).
Stereodon revolutus Mitt. Journ. Linn. Soc. 4: Suppl. I. 97. 1859.
Hypnum Heufleri Jur. Verh. K. K. Zool. Bot. Ges. 11. 431. 1861.
Stereodon plicatile Mitt. Journ. Linn. Soc. 8:40. 1864.
Hypnum plicatile Lesq. and Jas. Man. 394. 1884.
Hypnum Watsoni Lesq. and Jas. Man. 886. 1884.

In tracing back the history of this species the following references should also be consulted: Jaeger and Sauerb. Adumb. 316, 321, 325,—1877–78; Austin, Bull. Tor. Bot. Club, 7:6. 1880; Rau and Herv. Cat. 46. 1880; Macoun Cat. 6. 237. 1892; Ren. and Card. Musci Am. Sept. 61. 1893; Paris Index, 668 and 675. 1894; Kindb. Bryin. Eu. and N. A. 1:136. 1897; Limpr. Laubm. 3:479 and 498. 1899; and R. S. Williams Bull. N. Y. Bot. Gard. 2:141 and 379. 1901–02.

This is the opinion that Austin expressed before the Manual was written:

"Hypnum Watsoni, L. and J., Hab. Utah, Watson. There is a more accurate description of this species in the Bryology of the Forty-ninth parallel, by Mitten, under the name of *Hyp. plicatile* (1864). It is undoubtedly *Hyp. Heufleuri*, Juratzka (1861) (compared with a specimen from Schimper kindly furnished by Mr. James). It is also *H. revolutum*, Lindb., Ms. and H. *recurvo-marginatum*, n. sp. Aust Ms. I have many specimens of it from Colorado, Oregon and British Columbia. It also occurs in the high latitudes and alpine regions of Europe. The most striking feature of the species is the (usually) broadly revolute margin of the leaf, from base to point. The capsule is curved in the middle from an erect base, the operculum is shortly conic and very obtuse. The leaves are often serrulate at the apex, shortly bicostate, and furnished with a larger or smaller, usually not well defined patch of very short and minute, more or less obscure cells at the basal angles. In mode of growth, ramification, and in the reticulation of the leaves it is variable. I have what appears to be a form of this species also from Monterey, Mexico."

In order to determine if Austin was right, I have endeavored to see type specimens and authentically named material, and have been favored with a portion of the type of *Stereodon plicatile* Mitt. collected by Taylor at Davis' Straights, and also with specimens collected in the Rocky Mountains by Bourgeau, with drawings of the leaves. Besides the specimens mentioned by Austin, which are preserved in his Herbarium, we have an authentic specimen of *Hypnum Watsoni*, named by James (No. 1474 of the U. S. Geol. Surv. of the Fortieth Par.), from Bear River Canyon, Utah, Alt. 9,000 ft., collected by S. Watson. We also have two specimens named *Hypnnm Heufleri* Jur. (*H. revolutum* Lindb.) from Gray's Peak, Colorado, collected by Hooker and

Gray, 11–14,000 ft. Of *H. Heufleri* besides the specimen mentioned by Austin, we have a portion from the type locality sent to Jaeger by Heufler, as well as a large number of exsiccatæ and specimens from various European authorities. With these I have made comparisons with a series of specimens from various Western States, and I have no hesitation in agreeing with Austin's decision as expressed by the synonymy given above. Mr. Williams also has come to the same conclusion as he has had occasion to study some of these specimens in determining his collection from Montana and the Yukon Territory, and he is already on record in his lists of species of these regions.

The species seems to be common in high Alpine and subarctic regions of both hemispheres, the type locality of *H. revolutum* being at an elevation of 18,700 ft. in Thibet. Lindberg also described a species which he called *H. plicatulum* (Act. Soc. Scien. Fenn. 10:254. 1872) collected by Arnell in Siberia which Harald Lindberg has recently examined and pronounced to be the same as *H. revolutum.* It is singular that both Mitten and Lindberg should have used the same specific name for the same species.

It will be found that Limpricht describes two European varieties, *pygmaeum* and *Molendoanum,* and that Renauld and Cardot have described one American variety, *Villardi,* from specimens collected by Röll at Helena, Montana. The latter appears to me to be referable to the European variety *pygmaeum,* and is simply a depauperate, slender form, resembling some of the states of *H. cupressiforme.*

Limpricht records a long list of European stations at high elevations in all the mountain regions, ranging from 1,300–5,800 meters. In North America, the species has not been recorded from the Eastern United States, but is common in the Rocky Mountains, from British Columbia to Arizona and into Mexico. It is also reported from Hudson's Bay and Greenland.

Kindberg reverses the sequence of names by placing *H. revolutum* as a subspecies of *H. plicatile,* and limiting the name to the European species.

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Explanation of Plate 1, Sematophyllum recurvans (Michx.) E. G. Britton. In The Bryologist, January, 1903:

Fig. 1. S. recurvans, plant x 2; S. recurvans, anteridial, bud x 2. Fig. 2. Same enlarged, x 10. Fig. 3. Leaf of stem. Fig. 4. Base of same showing vesicular alar cells. Fig. 5. Apex of same showing serrate point. Fig. 6. Antheridial bud, x 10. Fig. 7. Leaf of same. Fig. 8. Antheridia and paraphyses. Fig. 9. Perichaetium and base of pedicel. Fig. 10. Apex of perichaetial leaf. Fig. 11. Mature capsule. Fig. 12. Old capsule. Fig. 13. Lid, showing beak. Fig. 14. Stomata on neck of capsule. Fig. 15. Peristome. Fig. 16. Annulns, showing three inflated cells. Fig. 17. Tooth of peristome, showing inter trabeculate surface. Fig. 18. Spores.